

6-08 WATERPROOFING**6-08.1 Description**

This Work shall consist of applying waterproofing materials to Portland cement concrete surfaces as required by the Plans, these Specifications, or the Engineer. The application of these waterproofing materials will not be required if a concrete admixture meeting the requirements of 9-23.8 is used.

6-08.2 Materials

Materials shall meet the requirements of the following sections:

Asphalt for Waterproofing	9-11.1
Waterproofing Fabric	9-11.2
Portland Cement Mortar	9-11.3
Waterproofing Admixture	9-23.8

6-08.3 Construction Requirements**6-08.3(1) Storage of Fabric**

The fabric shall be stored in a dry, protected place. Rolls shall not be stored standing on end.

6-08.3(2) Preparation of Surface

Concrete surfaces shall be reasonably smooth and without projections or holes that might puncture the waterproofing membrane. The surfaces shall be dry, with all dust and loose material removed. The Contractor shall not apply waterproofing in wet weather or when the air temperature is below 35°F unless the Engineer approves in writing.

6-08.3(3) Application of Waterproofing

Waterproofing asphalt shall be stirred frequently as it is heated to between 300°F and 350°F. Each heating kettle shall have a thermometer.

Each coat of primer or asphalt shall begin at the low point of the surface so that water will run over (not against or along) the laps.

In applying the waterproofing, the Contractor shall:

1. Apply a coat of primer and let it dry before applying the first asphalt coat.
2. Mop hot asphalt on a band about 20-inches wide across the full length of the surface.
3. Immediately roll a starter strip of half-width fabric into the asphalt, pressing it into place to rid it of all air bubbles and to conform it closely to the surface.
4. Mop hot asphalt over the starter strip and an adjacent section of surface so that the fresh asphalt forms a band slightly wider than the full width of the fabric.
5. Immediately roll a full-width strip of fabric into the fresh asphalt, pressing it into place as before.
6. Mop hot asphalt on the latest strip and on an adjacent band of the surface slightly wider than the full width of the fabric.
7. Immediately roll another strip of fabric into the asphalt, lapping the earlier strip by at least 2-inches and pressing it into place as before.
8. Repeat steps 6 and 7 until the entire surface is covered.
9. Mop the entire surface with a final coating of hot asphalt.

The 3 complete moppings of asphalt shall ensure that no fabric layer ever touches another fabric layer or the concrete surface. The Contractor shall examine all laps and ensure that they are thoroughly sealed down.

Each mopping shall cover completely, with a coat heavy enough to hide the fabric weave and all gray spots from the concrete. On horizontal surfaces, at least 12-gallons of asphalt shall be used for every 100-square feet of finished Work. On vertical surfaces, at least 15-gallons per 100-square feet shall be used.

At the end of each day's Work, all fabric that was laid shall have received its final mopping of asphalt.

Wherever the membrane ends or is punctured by drains, pipes, etc., the Contractor shall seal the area to prevent water from entering between the waterproofing and the concrete surface.

All flashing (at curbs, against girders, spandrel walls, etc.) shall be made of separate sheets that lap the main membrane by at least 12-inches. Flashing shall be sealed closely: (1) with full metal flashing, or (2) by imbedding its upper edges in a groove poured full of an acceptable joint cement.

At each expansion joint, the membrane shall not be broken but shall be folded to permit movement. At either end of the bridge, the membrane shall run well down abutments and shall allow for expansion and contraction.

6-08.3(4) Protection Course

If the Plans require, the Contractor shall place a layer of mortar at least 1½-inches thick over the whole surface of the membrane just after it has cooled to air temperature. This layer shall be a mix of 1 part Portland cement to 2 parts sand. It shall be distributed evenly over the membrane, tamped gently into place, finished by hand to a smooth, hard surface, then covered and kept moist for 1 week.

6-08.4 Measurement

Measurement will be the number of square yards of the surface of the waterproofed area.

6-08.5 Payment

Payment will be made in accordance with Section 1-04.1, for the following Bid item when it is included in the Proposal:

“Waterproofing”, per square yard.

Waterproofing of construction joints not shown in the Plans shall be at the Contractor's expense.